

REMARKS / ARGUMENTS

The status of the claims is as follows:

Claims 1, 3-13 and 15 are canceled.

Claims 2 and 14 are amended.

Claims 17 and 18 are newly added.

Claims 2, 14, 16, 17 and 18 are currently in the case.

The specification was objected to for the amendment filed on January 5, 2007 as adding "new matter". Although applicants believe the added material was inherent in the original description of the invention in the specification, and the added material was merely clarifying in nature, the objected language has been canceled in this amendment. See the amended paragraph [0015].

Claim 12 was rejected to under 35 USC § 112 for failing to comply with the written description, namely the material objected to as new matter above. Claim 12 is canceled by this amendment .

Claims 2, 4, 5, 7, 8 and 10-16 were rejected under 35 USC § 103(a) as being unpatentable over Fujimura et al (5,860,797) in view if Yokota et al (6,041,883). Independent claims 11, 12 and 13 have been replaced by new claims 17 and 18.

Therefore, the following arguments are directed to those newly added claims as well as dependent claims 2, 14 and 16, which remain in the case, and how they properly distinguish the invention over the prior art cited to support the rejection.

The claims are directed to a power steering pump that includes a housing which includes a bore having an axis, a fluid discharge port communicating with the bore at a first axial location, a fluid bypass port communicating with the bore at a second axial location with an inlet through which fluid enters the bypass port from the bore, and a fluid outlet passage at a first end of the bore communicating with the fluid discharge port and the bore. A cylindrical flow control valve is located at a second end of the bore, and has first and second ends. The first end of the valve extends into the bore and the valve is

axially displaceable along the axis from a first location in which the bypass port inlet is in an unobstructed open condition and into other locations within a defined range which cause a corresponding degree of interruption of fluid flow into the bypass port inlet, including a fully obstructed closed condition. The pump also includes a plunger element that is rigidly secured to the second end of the flow control valve and is axially displaceable with the valve along the axis in response to forces being applied to it. A coil spring surrounds a portion of the flow control valve. The spring is located at the second end of the bore and is seated between the housing and the plunger to provide a bias force against the plunger to place the flow control valve in the first location in the absence of other opposing forces. An electromagnetic coil is mounted in the housing and surrounds the plunger element. The coil generates an electromagnetic field that applies electromagnetic forces to move the plunger and the flow control valve along the axis against the bias forces of the spring to locations within the defined range. In addition, the flow control valve and the plunger element each have a continuous open fluid passage coaxially located in each of them to extend from the first end of the valve and through the plunger element to be in communication with fluid in the bore.

Neither Fujimura et al nor Yokota et al, individually or in combination, teach or suggest a steering pump with the elements as set forth in the pending claims.

Fujimura et al discloses a flow rate control device for a power steering pump that includes a hydraulic pressure reactive spool valve 16. The spool valve is elongated, but not uniform diameter, and is axially slidable within an inner hole 15 in a housing 1. The spool valve responds to feedback pressure from the discharge pressure chamber 25 to slide within the hole and regulate the amount of operating fluid that flows into bypass port 1a and back to a pump reservoir (col. 4, lines 57+ and col. 5, lines 1-3). The concept employed uses the principle of preventing by-pass flow when the system is at rest and only opening up the by-pass flow path in response to pump fluid pressure. There is no mention or suggestion in Fujimura et al that one should reverse the principle of operation or add any electrical control to the valve as shown in its many embodiments or how such modification should be applied.

Fujimura et al fails to disclose several claimed elements, such as a plunger element that is rigidly connected to the flow control valve; a plunger element that is responsive to an applied electromagnetic field to force the flow control valve to various positions; a spring that biases the plunger and valve to provide a normally open bypass port inlet when other forces are not present; and an open fluid passage that extends coaxially through both the valve and the plunger.

The several embodiments of Fujimura are silent to any of these claimed elements because the subject matter of that patent is directed to a pressure balancing valve and is not readily conducive to modification with components from Yokota et al, as alleged by the examiner.

Although the Examiner has said there is a spring 17 in Fujimura et al, that is seated against a plunger (16), that observation is in error for two reasons. First, there is no plunger as is recited in the claims pending in the application. Element 16 in Fujimura et al is a spool valve (col. 4, lines 8+). There is no suggestion of a spring operatively coupled to the flow control valve for biasing the flow control valve in the open position. Rather, Fujimura et al teaches the use of springs to bias the valve in a closed position to close fluid flow to the by-pass port in the absence of a higher pressure at the discharge pressure chamber 25

As mentioned above, Fujimura et al teaches that the valved pathway from the input port 1b to the bypass port 1a is closed by the position of the spool valve 16 when in its normally biased position. The spring 15 functions to bias the valve to keep this pathway normally closed. It is only after sufficient pressure is achieved in the discharge pressure chamber 25 and is in balance with the pressure in the pressure reducing chamber 23 that the spool element 16 is moved to the left (Fig. 3 and col. 4, lines 55-67) and causes the communication between input port 1b to the bypass port 1a. This is completely opposite to what Applicants are claiming.

While it is true that Yokota et al teaches a type of electrically actuated valve, it fails to teach a valve that includes the elements missing from Fujimura et al or a reason to make the alleged combination.

Yokota et al states that it is directed to a flow controlling apparatus that uses an actuator to vary spring force with which a valve spool of a flow control valve is urged (col. 3, lines 26+). A close look at Fig. 1 of Yokota et al shows that a coil 4 surrounds a portion of an actuator or core 41. The core 41 is part of a slide 36 that includes a disc 38 and a cylindrical extension 37. A spring is seated between the cylindrical extension 37 and the right hand edge of spool valve 14. There is no direct or rigid connection between the slide and the valve as Applicants have claimed.

Yokota et al utilizes an electrically controlled valve to control the pressure at the supply end of a fluid pump to either a minimum or maximum flow rate, depending on predetermined parameters. There is no discussion in Yokota et al of a bypass valve that is axially controlled to various open positions between a fully closed position and the fully opened position and to vary the position of the flow control valve and thereby vary the size of an associated inlet.

Rather, Yokota et al describes a unit in which when the coil is energized, the slide 36 is driven fully to its stop 44. At that time the spring is compressed and acts to force the spool towards a closed position against the pressure forces that are present in the bore. There is no appreciation or suggestion that a plunger, such as claimed by Applicants, could be controlled in its movement and, through its direct connection to a valve, control the location of the valve over a range of positions.

Yokota et al, like Fujimura et al, does not disclose an open fluid passage that extends coaxially through both the valve and the plunger.

Therefore, even if one were to modify Fujimura et al, as alleged by the examiner, the result would not include the elements recited in the pending claims.

The examiner's basic allegation is: "It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Fujimura et al by replacing the hydraulic actuation with an electromagnetic coil of Yokota et al operably connected to the plunger to regulate the flow of liquid into the fluid bypass port as a means of electronically controlling the valve...". This conclusion is flawed, since there has been no analysis performed as to what knowledge one of ordinary skill in the art would have possessed that would lead that person to know exactly what was to be assembled by merely studying the two references. There is nothing in the two references themselves that would render Applicants' invention obvious. Yes, one could go through the two references and find many similar components, such as one could do in a hardware store when one has the list (Applicants' claims). But assembling those components into an apparatus that is fully functional and matches both structure and function of what is claimed by Applicants is highly doubtful. Certainly not obvious.

The examiner has made the leap to conclude that the combined teachings of Fujimura et al and Yokota et al render the claims obvious, without defining the attributes of one skilled in the art; without knowing what one skilled in the art would have done in the face of those references; and without finding one hint or suggestion in either Fujimura et al or Yokota et al that the elements of the Applicants' claims are directed to an obvious combination. The examiner's analysis of the references failed to take into account all four criteria stated in MPEP §706.02(j) Contents of a 35 U.S.C. 103 Rejection:

"...the examiner should set forth in the Office action:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,

(B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification."

(emphasis added)

In particular, the examiner did not comply with parts C and D of the above-quoted MPEP Section. Instead, the examiner has made a conclusion.

Contrary to the examiner's conclusion, and as required by the MPEP and case law, the basis for combining references to support a rejection on obviousness must come from either the references themselves or that knowledge generally available to one of ordinary skill in the art to modify the reference or to combine the relevant teachings. The mere fact that the two references are in the same field does not provide the necessary knowledge, suggestion or obvious push to make the combination. Moreover, the knowledge that one skilled in the art must have to make the combination has not been alleged or in any way presented.

Another basic failure in the alleged combination made by the examiner is the "obvious" result of such combination. It is not conclusive that if one were to combine the references cited by the examiner, that Applicants' invention would be the result. For instance, if one skilled in the art were to add an electrical coil to Fujimura et al device, where would it be added? Which side of the spool valve would be driven? How would the spool be biased? What alterations would be needed to make the valve perform as Applicants have claimed? How would the chambers and the valve itself have to be modified since the device is no longer pressure controlled?. These are but a few of the questions that were not addressed in the alleged combination. Applicants submit that the broad concept of adding electrical control to a by-pass valve is not what is claimed. Rather, a precise combination of interactive elements is recited in the claims.

Neither of the references, individually or in combination, can show the pending claims to be mere obvious renderings of the teachings found in these references. Fujimura et al was filed in 1996. It is not as if electrically actuated bypass valves did not exist before Yokota et al which was filed in 1997. For instance, Myoshi et al (4,830,131) issued in 1989, a good 5-6 years before Fujimura et al was invented. In other words, the disclosure of Fujimura et al being directed to a pressure balancing valve was made with the assumed knowledge of those skilled in the art, at that time that electrically driven

valves were already known. If it would have been obvious to one skilled in the art at the time of Applicants' invention, it should have been obvious also to Fujimura et al (who presumably are inventors skilled in the art) at the time of their invention and they should have disclosed the possibility. Based on the complicated nature of the pressure differential valve, one could assume that the Fujimura et al valve is not convertible to an electric drive without some major alterations. Applicants believe that the clues or impetus for such conversion of Fujimura et al is not found in Yokota et al or any other reference cited to date or in the general knowledge of those working in the art at the time of Applicants' invention.

The recent case KSR International Co. v. Teleflex, Inc. 550 U.S. ____ (2007) No. 04-1350, reinforces the principle stated in Graham v. John Deere 383 U.S. 1 (1966):

"Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." *Id.*, at 17.18.

The rejection being discussed here also fails under that test. Short of Applicants' recitation in the claims, there is no other expressed basis on which one can allege the combination at the time of Applicants' invention. No level of ordinary skill test; no determination against that background; and no secondary considerations were made, such as the teaching away by the Fujimura et al patent. The KSR decision finds support in In re Kahn, 441 F. 3d 977 (CA fed. 2006):

("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness").

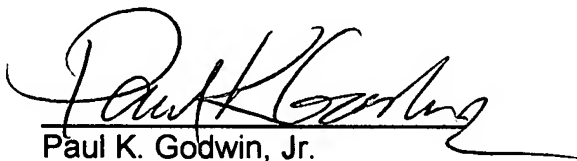
By that measure, the references, as placed in combination by the examiner, are insufficient to evidence a rejection under 35 USC (103)(a).

All of the other prior art cited by the examiner have been reviewed and it is agreed that they are properly not cited to support rejections of any pending claims

It is believed that the foregoing amendments to the specification and claims of the subject application overcome the examiner's objections and rejections stated in the aforementioned Office Action. In addition, it is believed that the foregoing remarks have rebutted each argument set forth by the examiner in an attempt to advance prosecution and illustrate how the claimed invention is patentable over the prior art of record. Accordingly, the examiner is requested to withdraw his rejections and pass the case to issue.

If the examiner believes that a telephone interview is appropriate to resolve any outstanding issues, he is requested to call the undersigned attorney at the direct number indicated below.

Respectfully submitted,



Paul K. Godwin, Jr.
Registration No. 27725
Attorney for Applicants

Date: 7/4/2007
MacMillan, Sobanski & Todd, LLC
Firm Phone: 734-542-0900
Firm Fax: 734 542-9569
Direct: 810-844-0032